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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/003,363	11/15/2001	Yukiko Kubota	010952	4664

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EXAMINER

BERNATZ, KEVIN M

ART UNIT	PAPER NUMBER
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1773

DATE MAILED: 12/22/2003

9

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/003,363

Applicant(s)

KUBOTA ET AL.

Examiner

Kevin M Bernatz

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10, 12-21, 25, 27 and 29-47 is/are pending in the application.
- 4a) Of the above claim(s) 27 and 31 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-10, 12-21, 25, 29, 30 and 32-47 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☒ Interview Summary (PTO-413) Paper No(s). 9.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☐ Other:

DETAILED ACTION

Response to Amendment

1. Amendments to claims 1 – 3, 6, 14, 34 and 44 - 47, filed on August 29, 2003, have been entered in the above-identified application.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Examiner's Comments

3. The Examiner notes that claims 29 and 30 are still pending in the application even though they have been indicated as "withdrawn" by applicants. See attached interview summary for clarification.

Request for Continued Examination

4. The Request for Continued Examination (RCE) under 37 CFR 1.53 (d) filed on August 29, 2003 is acceptable and a RCE has been established. An action on the RCE follows.

Double Patenting

5. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA

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1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. Claims 14, 19, 20, 25, 34 – 36, 42 and 43 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 and 2 of U.S. Patent No. 6,531,202 B1 (Litvinov et al.) in view of Howard et al. (U.S. Patent No. 4,632,883) for the reasons of record as set forth in Paragraph No. 9 of the Office Action mailed on July 14, 2003 (Paper No. 6).

Claim Rejections - 35 USC § 112

7. Claims 1, 14 and 34 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. These claims contain the limitation “inherently magnetically anisotropic” where the term “inherently” is known to refer to a property or functional limitation that must always be present (see MPEP 2163.07(a)). Applicants as-filed disclosure provides clear teaching that the magnetic anisotropy of FeCoB alloys is *not* inherently anisotropic, but that only through specific processing conditions does such an anisotropic condition result (*specification Paragraphs 0032 – 0033 and Paper*

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No. 8, paragraph bridging pages 13 and 14). Therefore, the Examiner deems that there is insufficient support for the limitation "inherent" based on the commonly accepted meaning of the term with respect to claim interpretation.

8. Claims 29 and 30 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In the instant case, no mention of the type of coupling between adjacent soft magnetic underlayers is noted in the specification.

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claims 1, 14 and 34 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "inherent" in claims 1, 14 and 34 is used by the claims to imply the presence of a magnetic anisotropy without the existence of other layers causing the anisotropy (*applicants' arguments in Paper No. 8*), while the accepted meaning is a property that must always be present regardless of method of making or interactions with different layers. Since the specification indicates that the property of "magnetic anisotropic" clearly results from the method of making and is not always present, the term is indefinite because the specification does not clearly redefine the term. For the

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purpose of evaluating the prior art, the Examiner has given the limitation "is inherently magnetically anisotropic" the broadest reasonable interpretation in view of the as-filed disclosure. Specifically, as long as the soft magnetic layer in the final product possesses magnetic anisotropy the above limitation is deemed to be met.

Claim Rejections - 35 USC § 102

11. Claims 14, 34 – 36 and 43 rejected under 35 U.S.C. 102(e) as being anticipated by Litvinov et al. ('202 B1); ***and***

12. Claims 14, 34 – 36 43 are rejected under 35 U.S.C. 102(f) because the applicant did not invent the claimed subject matter for the reasons of record as set forth in Paragraph Numbers 13 and 14 of the Office Action mailed on July 14, 2003 (Paper No. 6).

Claim Rejections - 35 USC § 103

13. Claims 19, 20, 25 and 42 are directed to an invention not patentably distinct from claims 1 and 2 of commonly assigned patent '202 B1 (Litvinov et al.) for the reasons of record as set forth in Paragraph No. 15 of the Office Action mailed on July 14, 2003 (Paper No. 6).

14. Claims 19, 20, 25 and 42 are rejected under 35 U.S.C. 103(a) as being obvious over Litvinov et al. as applied above, and further in view of Howard et al. ('883) for the

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reasons of record as set forth in Paragraph No. 16 of the Office Action mailed on July 14, 2003 (Paper No. 6).

15. Claims 14, 25, 34 – 37, 42 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugita et al. ('712) in view of Ando ('413 B1) and Hikosaka et al. ('342) for the reasons of record as set forth in Paragraph No. 17 of the Office Action mailed on July 14, 2003 (Paper No. 6).

16. Claims 1 – 3, 9, 10, 32, 38, 40 and 45 – 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugita et al. in view of Ando and Hikosaka et al. as applied above, and further in view of Ikeda et al. ('670 B1).

Regarding claims 1, 9, 10, 32, 38 and 40, the above rejection is maintained for the reasons of record as set forth in Paragraph No. 18 of the Office Action mailed on July 14, 2003 (Paper No. 6).

Regarding claims 2, 3 and 45 – 47, Sugita et al. teach that the thickness of the non-magnetic spacer layers and the soft magnetic underlayers (either individually or in total) can be varied to effect the recording and reproducing characteristics in a perpendicular magnetic recording medium (*Figures 4 and 5; col. 2, lines 29 – 64; col. 3, lines 1 – 35; col. 4, lines 36 – 41; and Examples*). Therefore, the Examiner deems that it would have been obvious to one having ordinary skill in the art to optimize the thickness values of these layers, thereby meeting applicants' claimed thickness limitations by optimizing the results effective variable through routine experimentation.

In re Boesch, 205 USPQ 215 (CCPA 1980); *In re Geisler*, 116 F. 3d 1465, 43 USPQ2d 1362, 1365 (Fed. Cir. 1997); *In re Aller*, 220 F.2d, 454, 456, 105 USPQ 233, 235 (CCPA 1955).

17. Claims 4 – 6, 12, 13, 19, 20, 29, 30, 33 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugita et al. in view of Ando, Hikosaka et al. and Ikeda et al. as applied above, and further in view of Howard et al. ('883) for the reasons of record as set forth in Paragraph No. 19 of the Office Action mailed on July 14, 2003 (Paper No. 6).

18. Claims 7, 8, 15 – 18, 21 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugita et al. in view of Ando, Hikosaka et al. and Ikeda et al. as applied above, and further in view of Fujimura et al. ('308), Platt et al. (IEEE, 2001), Beatrice et al. (IEEE, 1997), Kraus et al. (IEEE, 1994) and Brouha et al. ('324 A1) for the reasons of record as set forth in Paragraph No. 20 of the Office Action mailed on July 14, 2003 (Paper No. 6).

19. Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sugita et al. in view of Ando and Hikosaka et al. as applied above, and further in view of Chen et al. (U.S. Patent No. 5,976,715).

Sugita et al. in view of Ando and Hikosaka et al. is relied upon as described above.

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None of the above teach an anisotropic field meeting applicants' claimed functional limitation.

However, Chen et al. teach the importance of controlling the magnetic anisotropy field, H_k , especially for high frequency applications (*col. 7, lines 28 – 60*). Specifically, “too high of a H_k value reduces the high frequency permeability” and “too low a H_k value causes the ferromagnetic resonance frequency to be reduced and interfere with operating frequency ranges”, where “desirable H_k values ... are, e.g., in the range from 10 – 100 Oe” (*col. 7, lines 43 – 48*).

Therefore, the Examiner deems that it would have been obvious to one having ordinary skill in the art to have determined the optimum value of a results effective variable such as the magnetic anisotropy field through routine experimentation, especially given the teaching in Chen et al. regarding the desire to use a value between 10 and 100 Oe to possess a good combination of the high frequency permeability and resonance frequency.

Response to Arguments

20. The Double Patenting rejection of claims 14, 19, 20, 25, 34 – 36, 42 and 43 in view of Litvinov et al. and Howard et al.

The rejection of claims 14, 34 – 36 and 43 under 35 U.S.C § 102(e) or 102(f) – Litvinov et al.

The rejection of claims 19, 20, 25 and 42 under 35 U.S.C § 103(a) – Litvinov et al.

The rejection of claims 19, 20, 25 and 42 under 35 U.S.C § 103(a) – Litvinov et al. in view of Howard et al.

The rejection of claims 1 – 10, 12 – 21, 25, 27 and 29 – 44 under 35 U.S.C § 103(a) – Sugita et al. in view of various references

With respect to the present rejections of record, applicant(s) argue(s) that the claimed invention is patentably distinct since the limitation “is inherently anisotropic” distinguishes over the prior art. The examiner respectfully disagrees.

As noted in the rejections of record, the term “inherently” is both not supported by the as-filed disclosure and indefinite in scope based on the common meaning of the word in view of the as-filed disclosure.

Since in claims directed to a product, the properties present at intermediate stages are not distinguishing features (i.e. it is a patent on the final product which is being obtained, not a patent on the intermediate product), the Examiner further deems that as long as the soft magnetic layer possess a magnetic anisotropy in the final product, the method by which such anisotropy is obtained does not serve to patentably distinguish over prior art products. Claims directed to non-nominal method steps to produce such magnetic anisotropy (as opposed to a layer possessing the property of magnetic anisotropy) would distinguish over prior art methods, but the Examiner notes that such claims would be subject to restriction by original presentation since applicants' have already received an action on the merits of the elected product.

The Examiner recommends consideration of structural features which distinguish the claimed product from the prior art products, perhaps by the use of language such as

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"directly deposited" to exclude the existence of biasing layers adjacent to the soft magnetic layer. Presently, applicants' claims are open to additional layers being present between the soft magnetic layer and either the non-magnetic spacer layer or the perpendicular magnetic layer.

Conclusion

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin M Bernatz whose telephone number is (703) 308-1737. The examiner can normally be reached on M-F, 9:00 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Thibodeau can be reached on (703) 308-2367. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9310.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



Kevin M. Bernatz
Patent Examiner

December 12, 2003